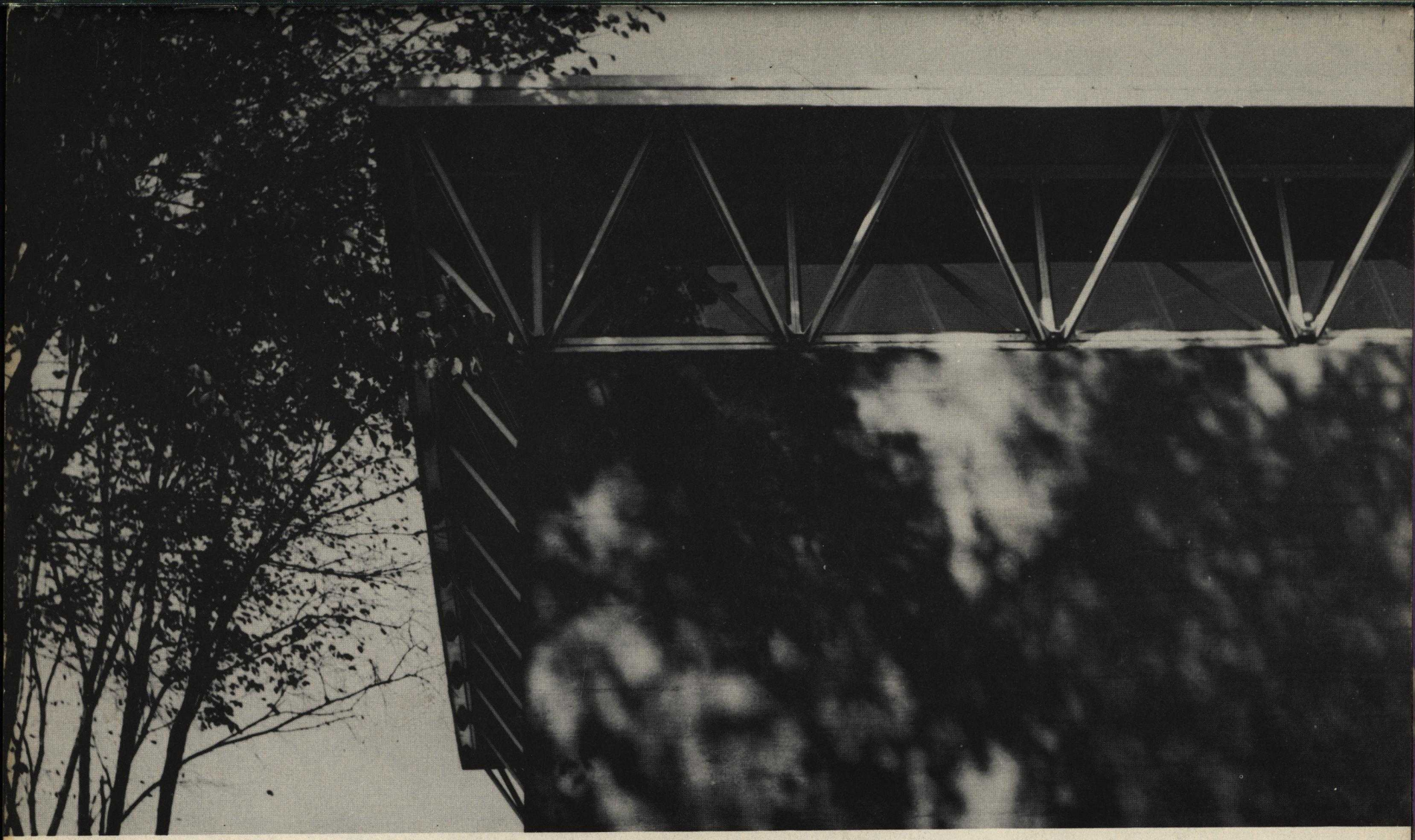


UNISTRUT SYSTEM OF CONSTRUCTION

ANN ARBOR GYMKHANA

ANN ARBOR, MICHIGAN

7

UNISTRUT SYSTEM OF CONSTRUCTION

ANN ARBOR GYMKHANA ANN ARBOR, MICHIGAN

DESIGN BROCHURE No.7

PAUL H. COY - ARCHITECT

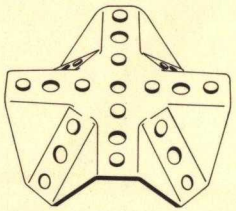
SUN CHIEN HSIAO - DESIGNER

DON T. BOTSFORD - OWNER AND CONTRACTOR

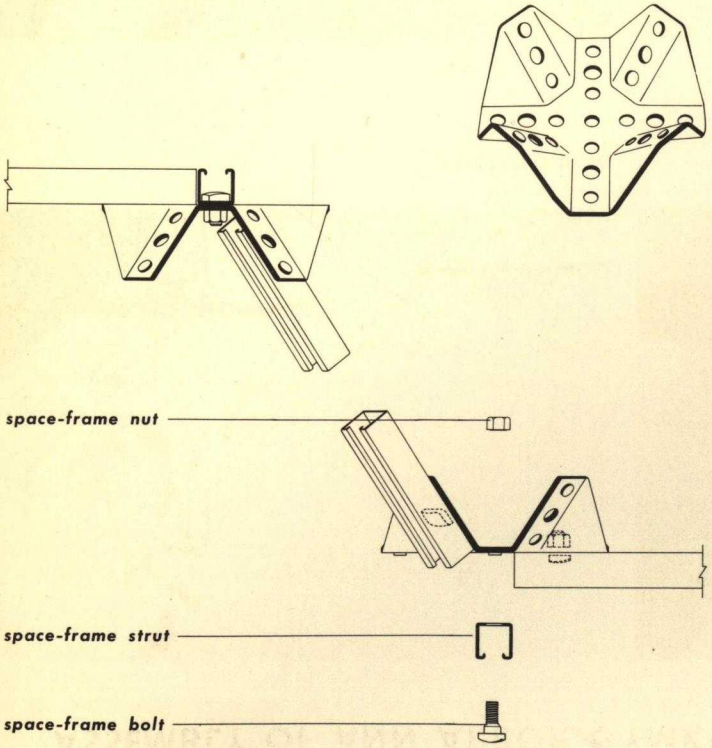
Copyright 1957
by Unistrut Corporation – Wayne, Michigan
Produced under developments of the Attwood Development Company

THIS DESIGN BROCHURE IS THE SEVENTH in a series intended to serve as a reference guide for architects and others interested in the Unistrut system of construction. It describes a building located at 415 South Maple Road, Ann Arbor, Michigan for the use of an athletic club that specializes in gymnastic activities such as tumbling, trampoling, weight lifting, etc. The most interesting construction feature of this building is the selection of Unistrut space frame roof structure which is anchored to a conventional masonry wall. The principle reasons for this selection are: (1) much of the actual labor spent in erecting this roof was by the owner-contractor Mr. D. T. Botsford himself, a fact that results in substantial saving of construction cost; (2) the perimeter roof construction of cornice glazed glass panels and windows enable the interior space to receive plenty of daylight and natural ventilation without additional windows. The final effect of this design is very pleasant, resulting in lower maintenance costs with minimum window cleaning and minimum artifical lighting during daytime; (3) lighting fixtures, space heaters, safety belts for trampolines and climbing ropes, etc., may be hung from any desirable ceiling location; (4) future savings will be realized if the roof structure need be expanded in any horizontal direction with minimum alteration to the present roof.

The brochure has two main parts - building drawings (BD series) which are pertinent to this particular building, and structural assemblies (SA series), which being more general could apply to many buildings, and become standard details. When more buildings using the Unistrut system are designed and more details added, it will be possible with these design sheets and other important information to form a fully developed Unistrut Building Design Manual as a reference handbook in designing various types of shelters and buildings.



UNISTRUT SPACE-FRAME CONNECTION DETAIL



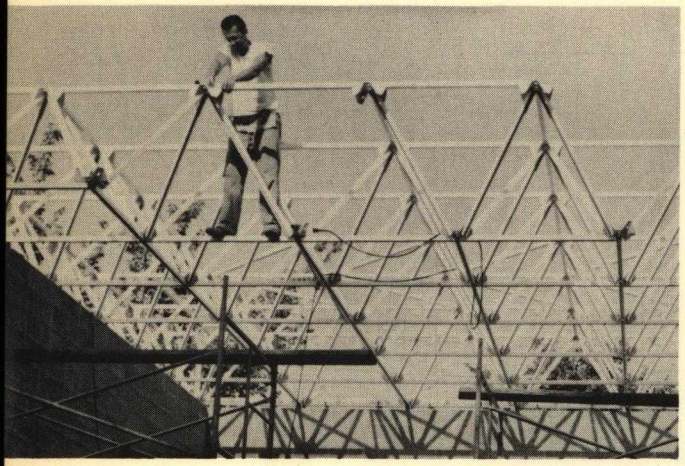
patents pending

THE UNISTRUT SYSTEM OF CONSTRUCTION has been developed to provide buildings with standardized and interchangeable structural parts geared to mass production techniques. The parts are light in weight and can be quickly put together with wrenches and other simple tools. The result is a modular building not only durable but also flexible in design. Expandability and demountability are built-in features of this system.

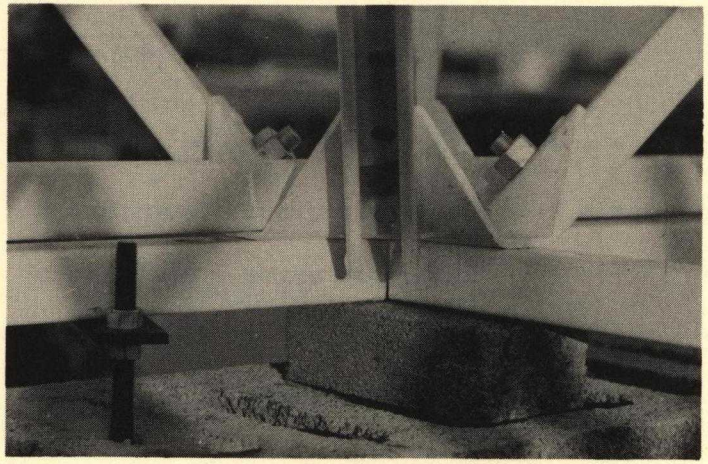
The Unistrut structural system grows out of the Unistrut framing system which has found wide use in factories and power plants for mounting all kinds and types of electrical and mechanical equipment for material handling facilities in warehouses, for office space partitions, in buildings and display paneling, and other facilities in retail businesses. The first building to use the system was erected at the company's plant in Wayne, Michigan in 1944. In 1949, Mr. Charles W. Attwood, President of Unistrut Corporation, asked the Engineering Research Institute at the University of Michigan to assist in developing the system for low-cost school house construction.

The research work has led to the Unistrut space-frame system illustrated in these Design Brochures. An extensive testing program, also a part of the research, was carried out during the year 1953 and 1954. The test results were published in 1955, by the University of Michigan Press, entitled Unistrut Space Frame System.

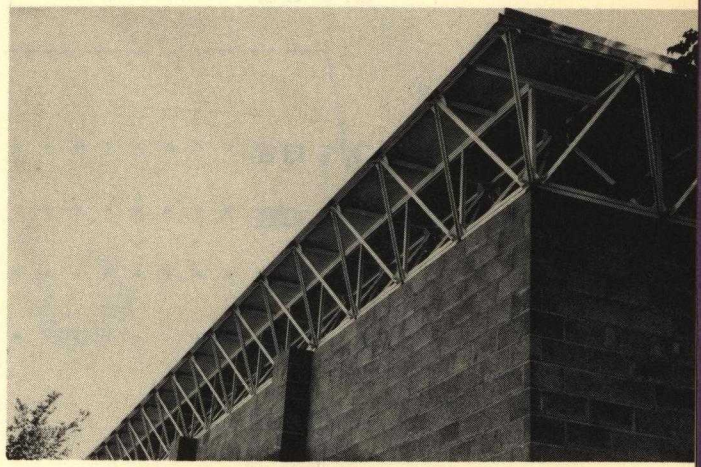
ASSEMBLY OF ANN ARBOR GYMKHANA



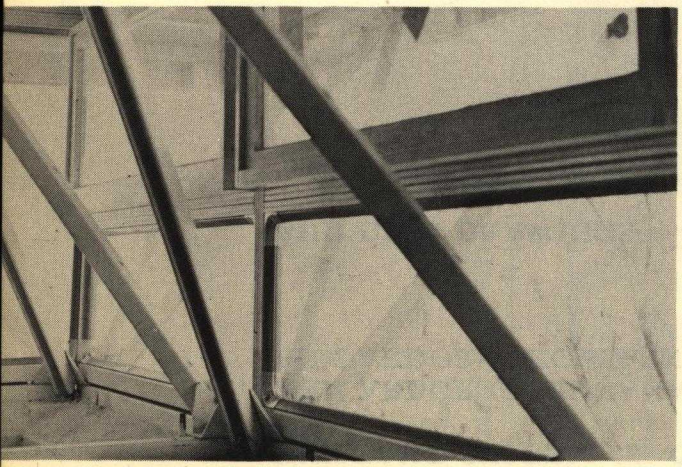
roof framing



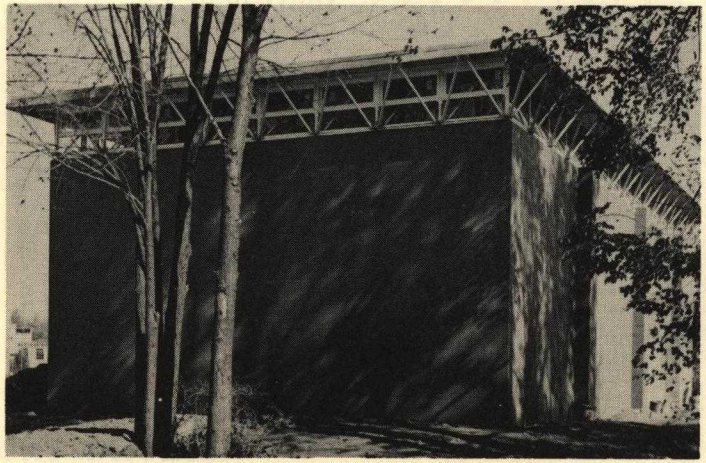
anchoring detail



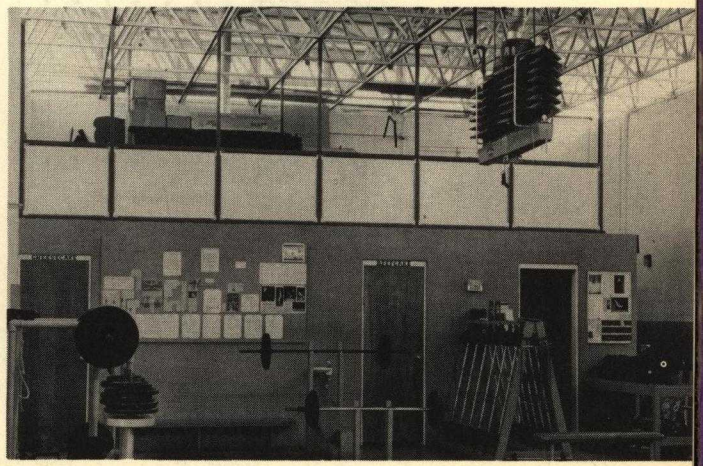
roof completed



window detail



building completed



interior

UNISTRUT SYSTEM OF CONSTRUCTION

ANN ARBOR GYMKHANA
ANN ARBOR, MICHIGAN

BUILDING DRAWINGS:

site work

plot arrangement . . . . . BD 1/A

framing system

plan - ground floor . . . . . BD 2/A1

mezzanine floor . . . . . BD 2/A2

plan - roof . . . . . BD 2/A3

enclosure system

plan - roof . . . . . BD 3/A

elevations - north and west . . . . . BD 3/B1

elevations - south and east . . . . . BD 3/B2

sections . . . . . BD 3/C

services and utility

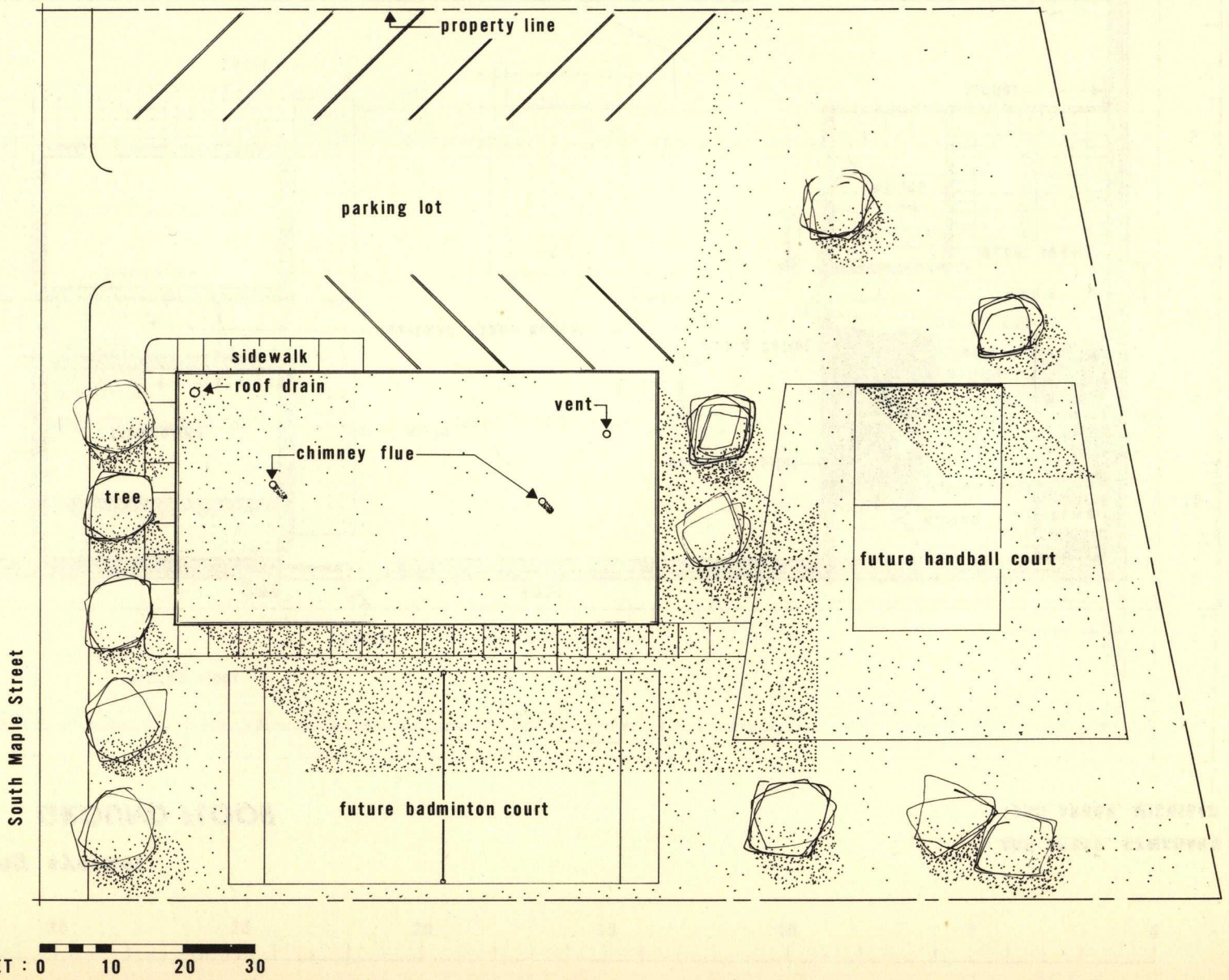
heating . . . . . BD 4/B

electrical . . . . . BD 4/C

site work

BD 1/A - PLOT ARRANGEMENT

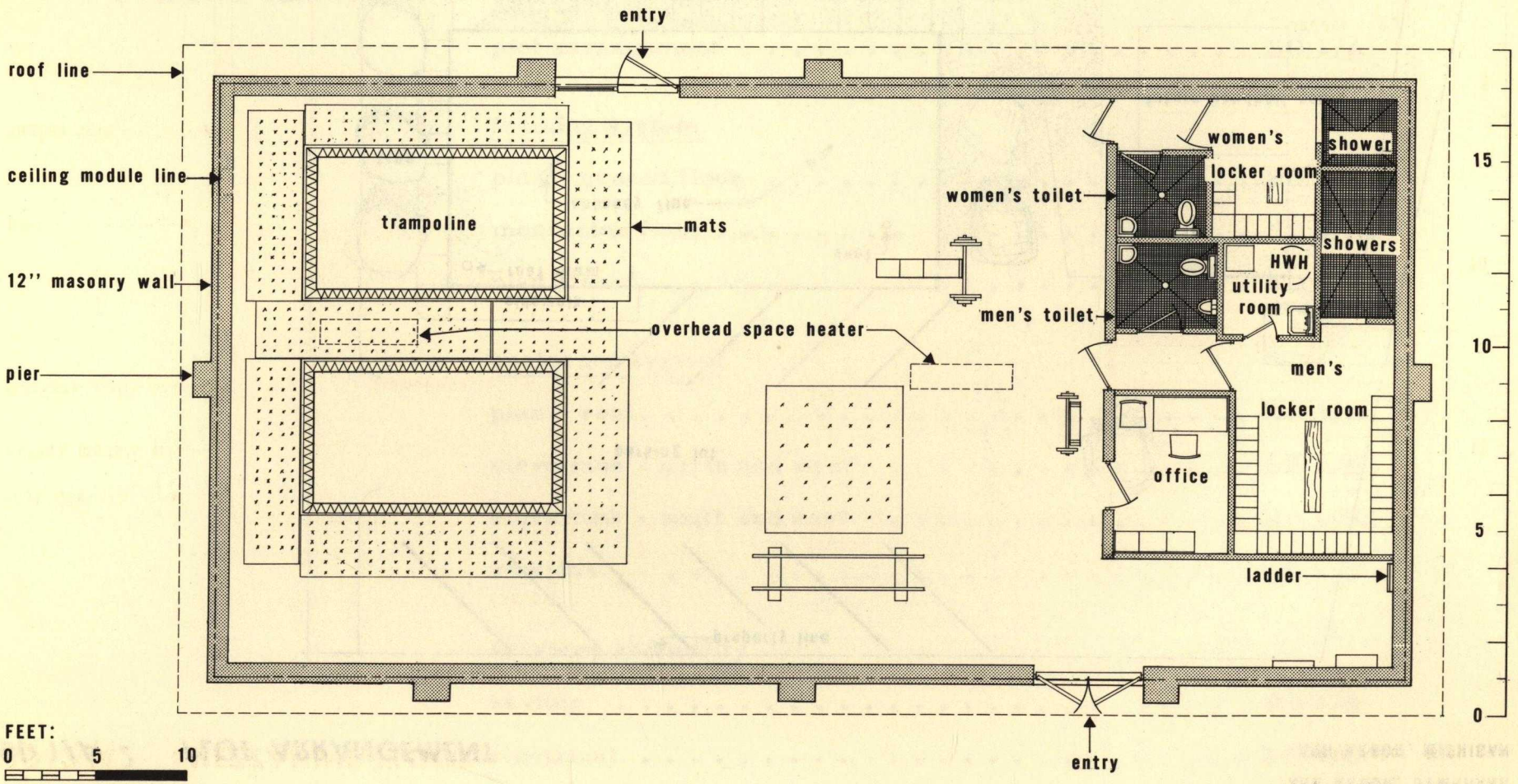
ANN ARBOR, GYMKHANA
ANN ARBOR, MICHIGAN



framing system

BD 2/A1 - PLAN - GROUND FLOOR

ANN ARBOR, GYMKHANA
ANN ARBOR, MICHIGAN



FEET:
0 5 10

half scale module

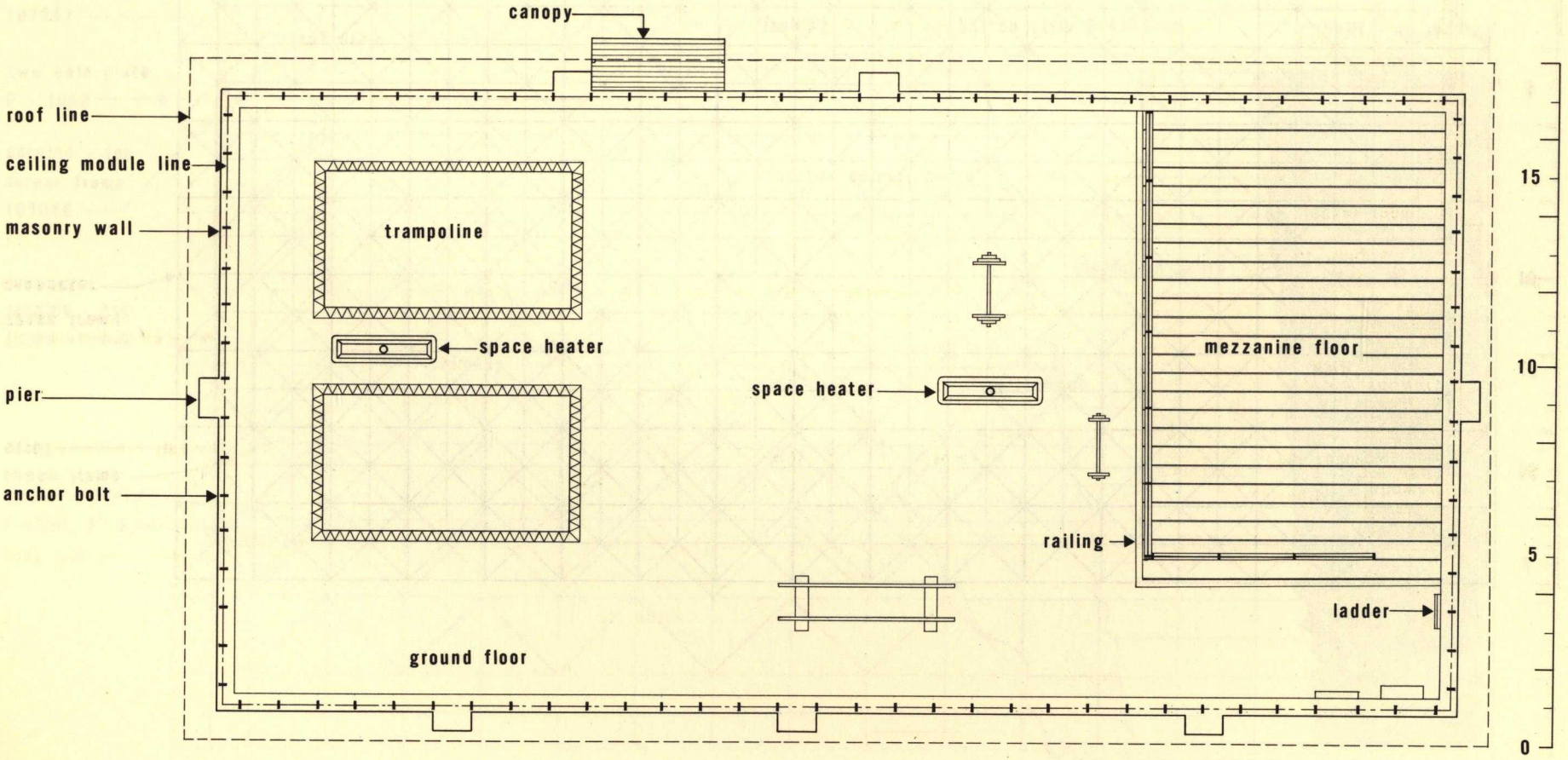
module. 4'1''

30 25 20 15 10 5 0

framing system

BD 2/A2 -MEZZANINE FLOOR

Ann Arbor Gymkhana
Ann Arbor, Michigan



FEET:
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half module scale
module 4' 1"
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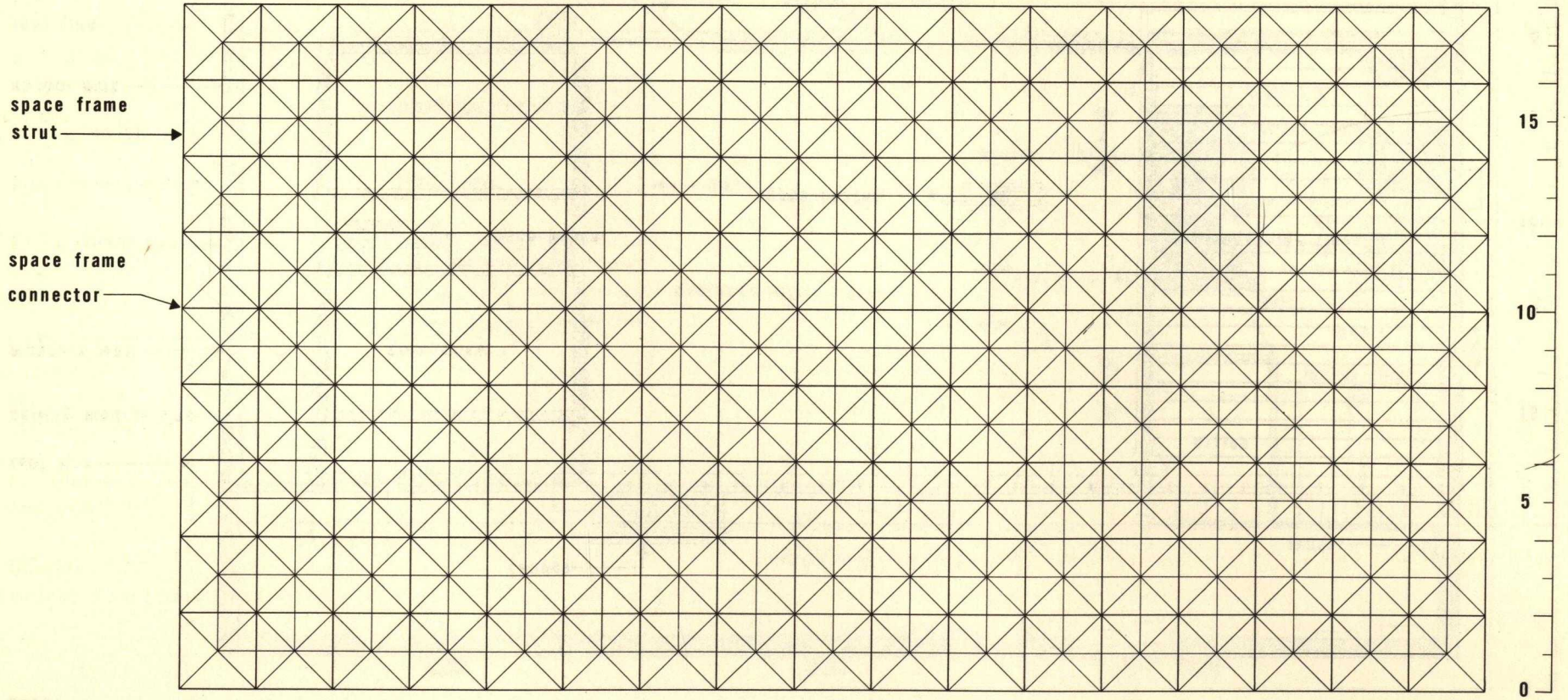
framing system

BD 2/A3 - PLAN - ROOF

Ann Arbor Gymkhana

Ann Arbor, Michigan



FEET:
0 5 10

half module scale

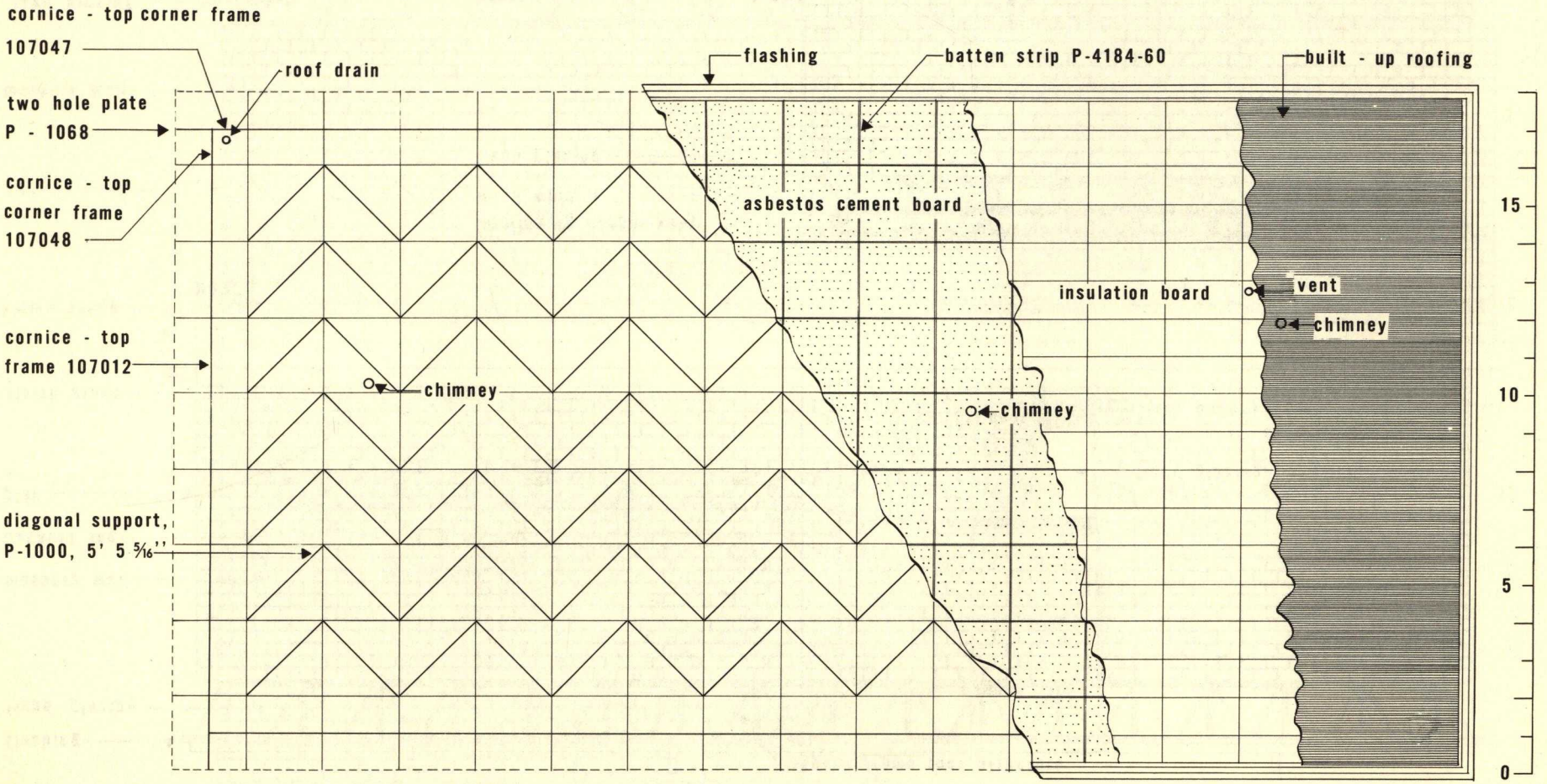
module 4' 1''

30 25 20 15 10 5 0

enclosure system

BD 3/A - PLAN - ROOF

Ann Arbor Gymkhana
Ann Arbor, Michigan



FEET:
0 5 10

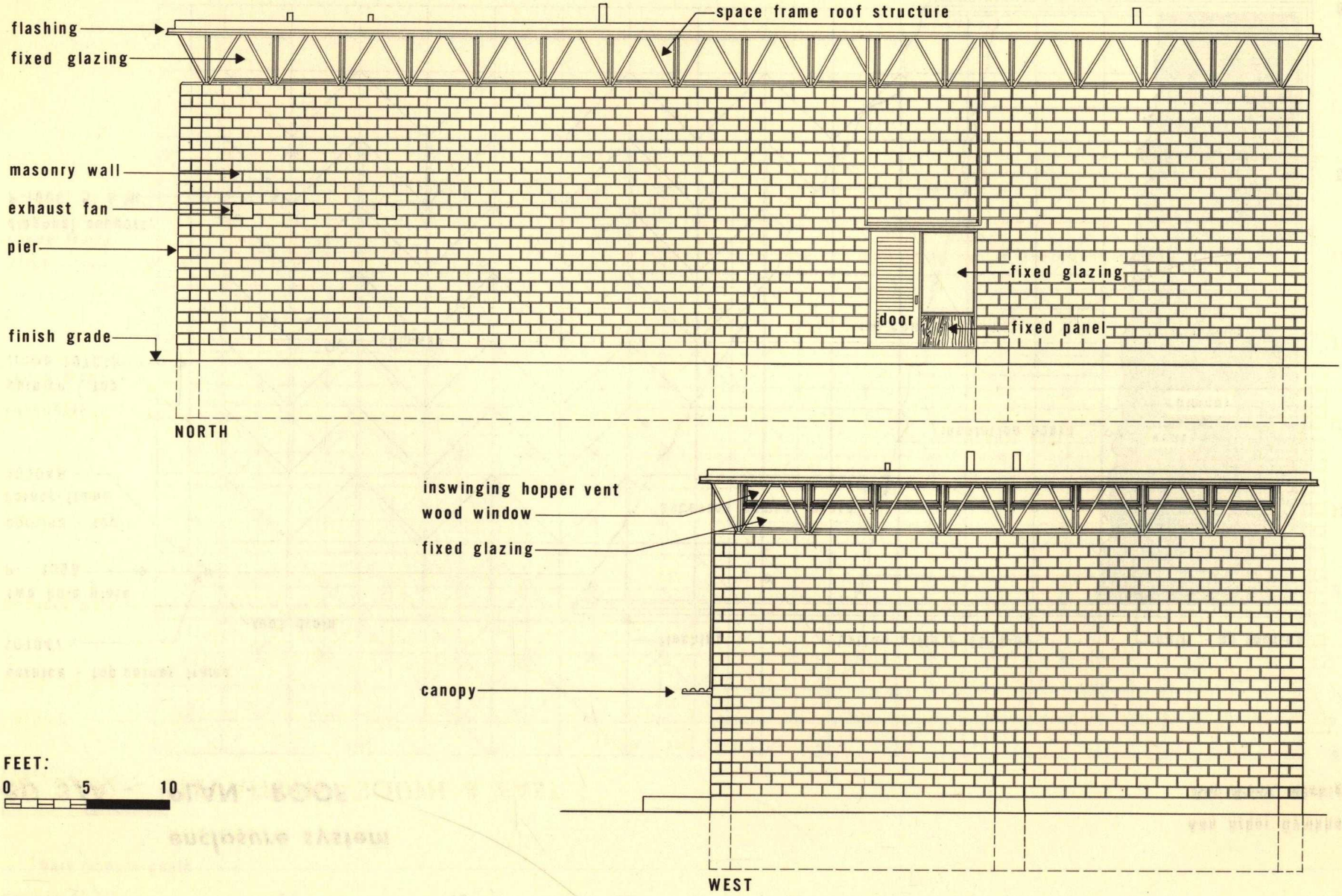
half module scale
module 4' 1''
30 25 20 15 10 5 0

enclosure system

BD 3/B1 - ELEVATIONS - NORTH & WEST

Ann Arbor Gymkhana

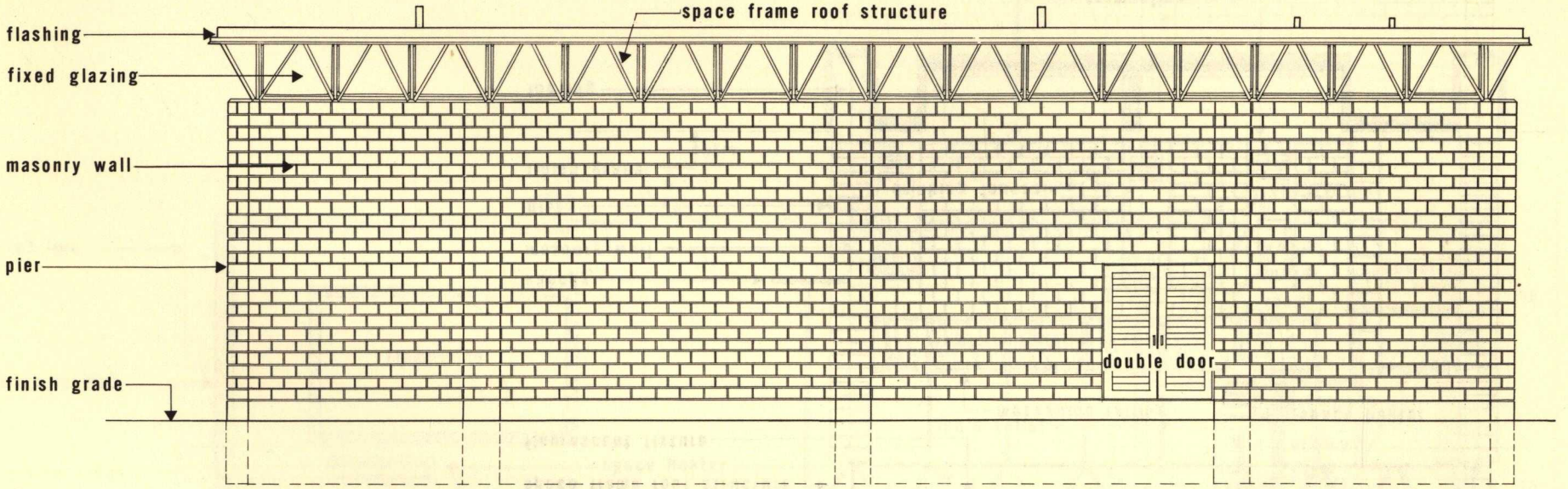
Ann Arbor, Michigan



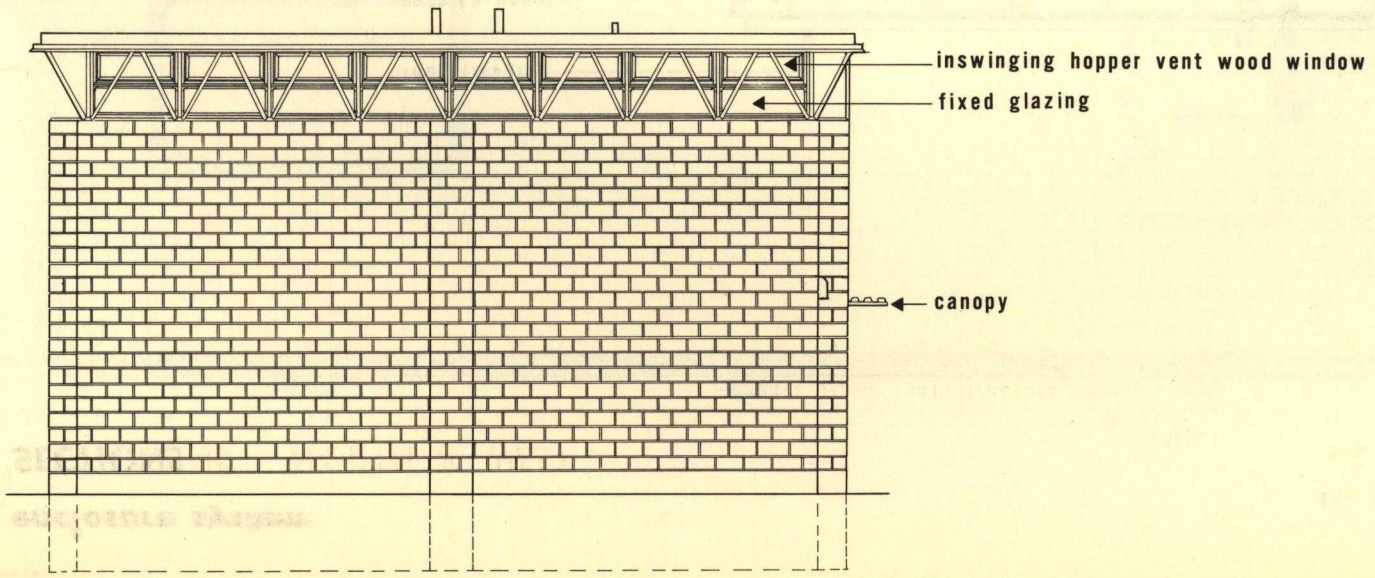
enclosure system

BD 3/B2 - ELEVATIONS - SOUTH & EAST

Ann Arbor Gymkhana
Ann Arbor, Michigan



SOUTH



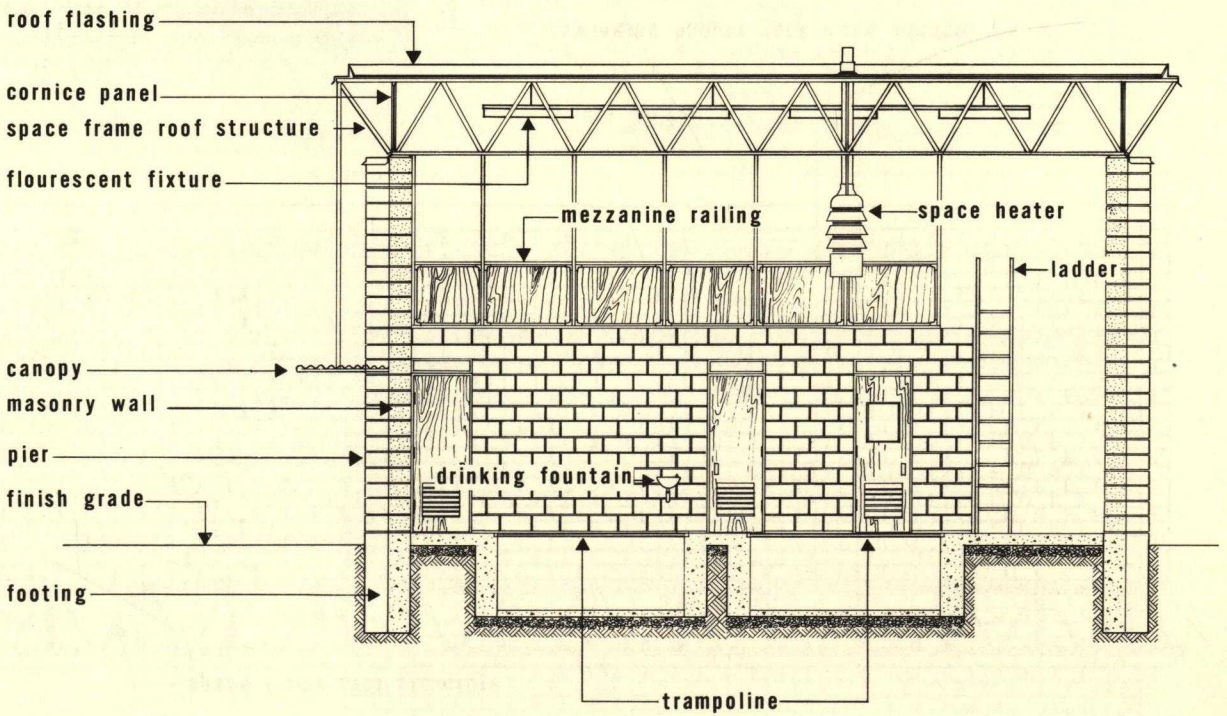
EAST

FEET:
0 5 10

enclosure system

BD 3/C - SECTIONS

Ann Arbor Gymkhana
Ann Arbor, Michigan

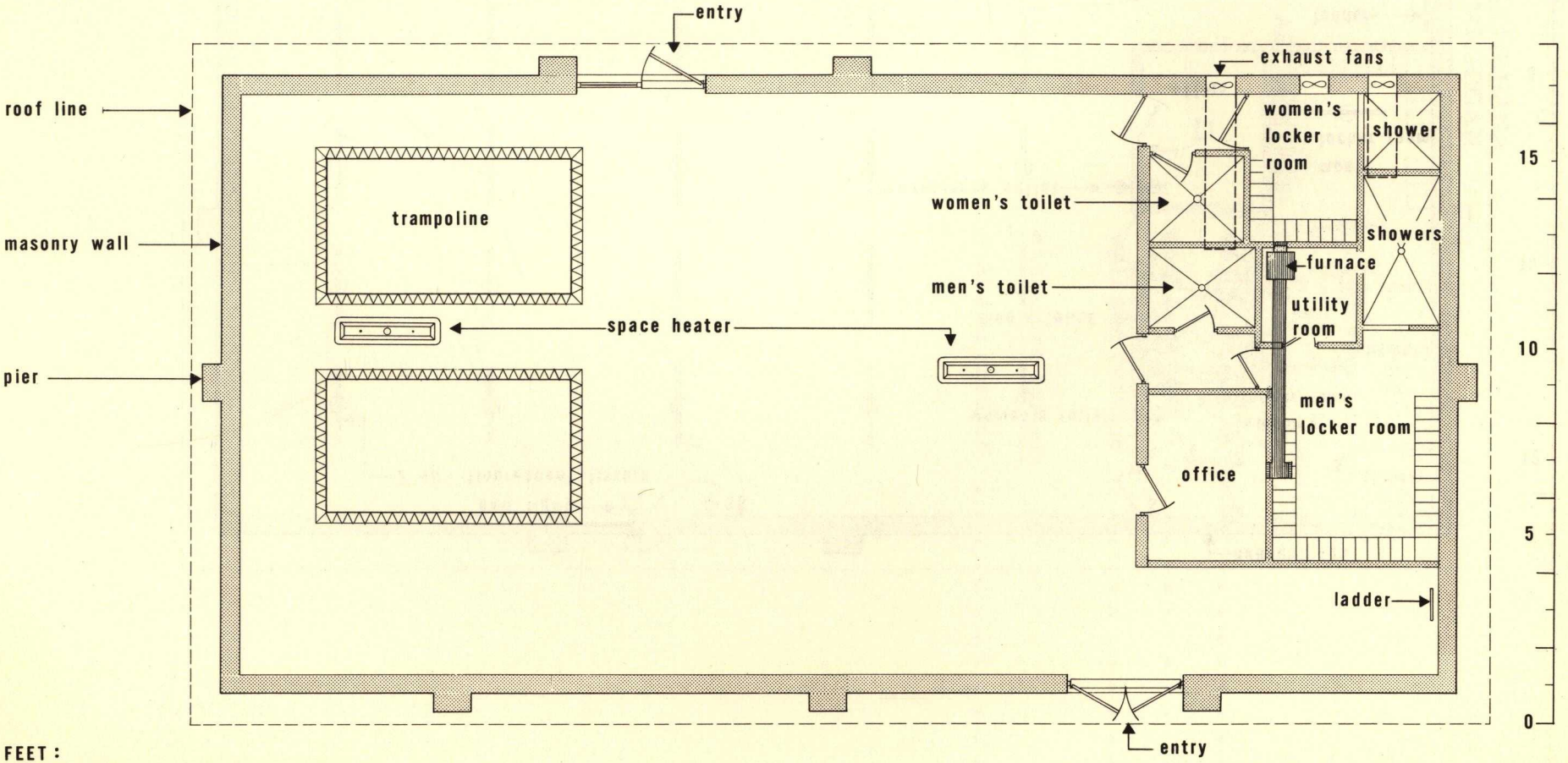


FEET:
0 5 10

services and utilities

BD 4/B - HEATING

Ann Arbor Gymkhana
Ann Arbor, Michigan



FEET :
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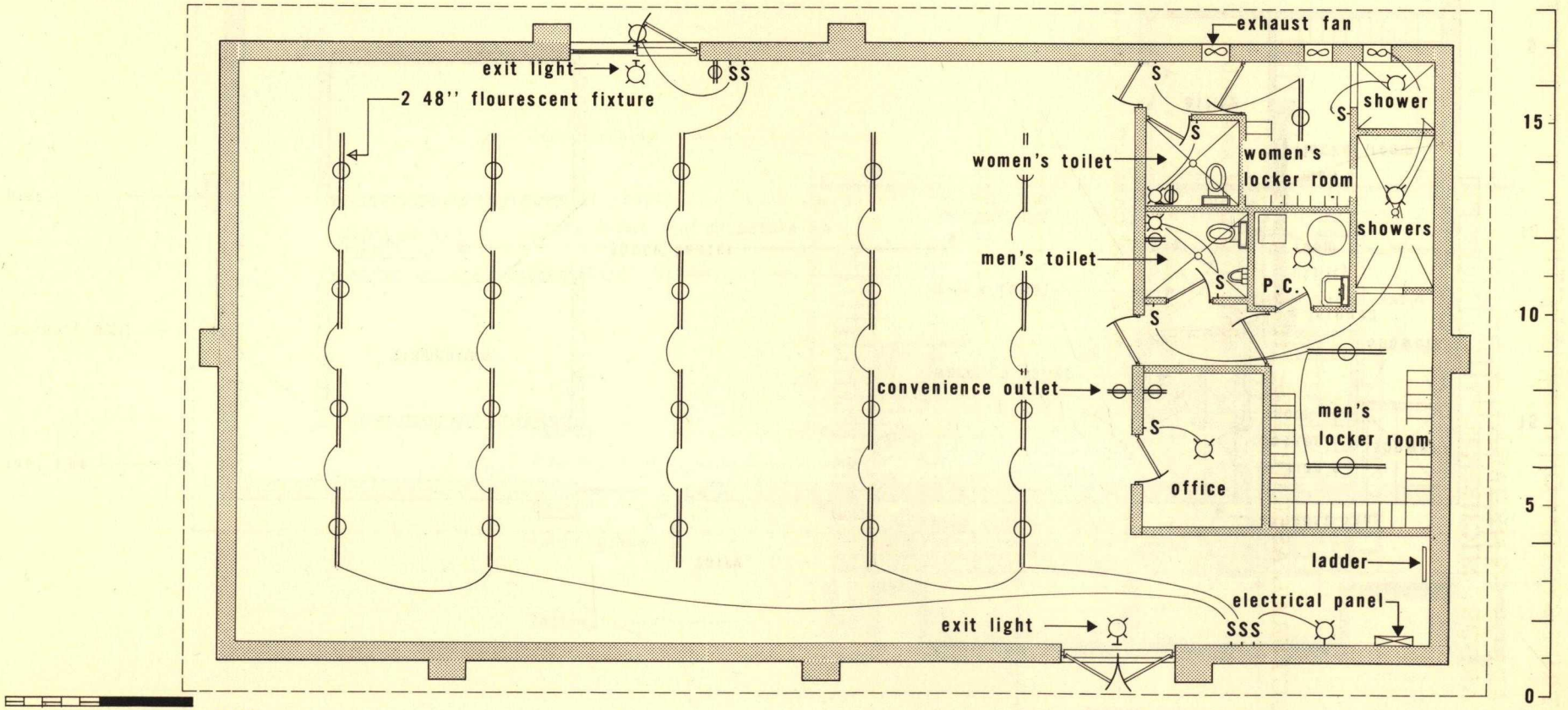
half module scale
module 4' 1''
30 25 20 15 10 5 0

services and utilities

BD 4/C - ELECTRICAL

Ann Arbor Gymkhana
Ann Arbor, Michigan



0 5 10 FEET

half module scale

module 4' 1''

30 25 20 15 10 5 0

UNISTRUT SYSTEM OF CONSTRUCTION

ANN ARBOR GYMKHANA
ANN ARBOR, MICHIGAN

STRUCTURAL ASSEMBLIES: framing system

wall and roof assembly . . . . . SA 2/3-4

roof assembly . . . . . SA 2/4A

wall and cornice . . . . . SA 2/4B

enclosure system

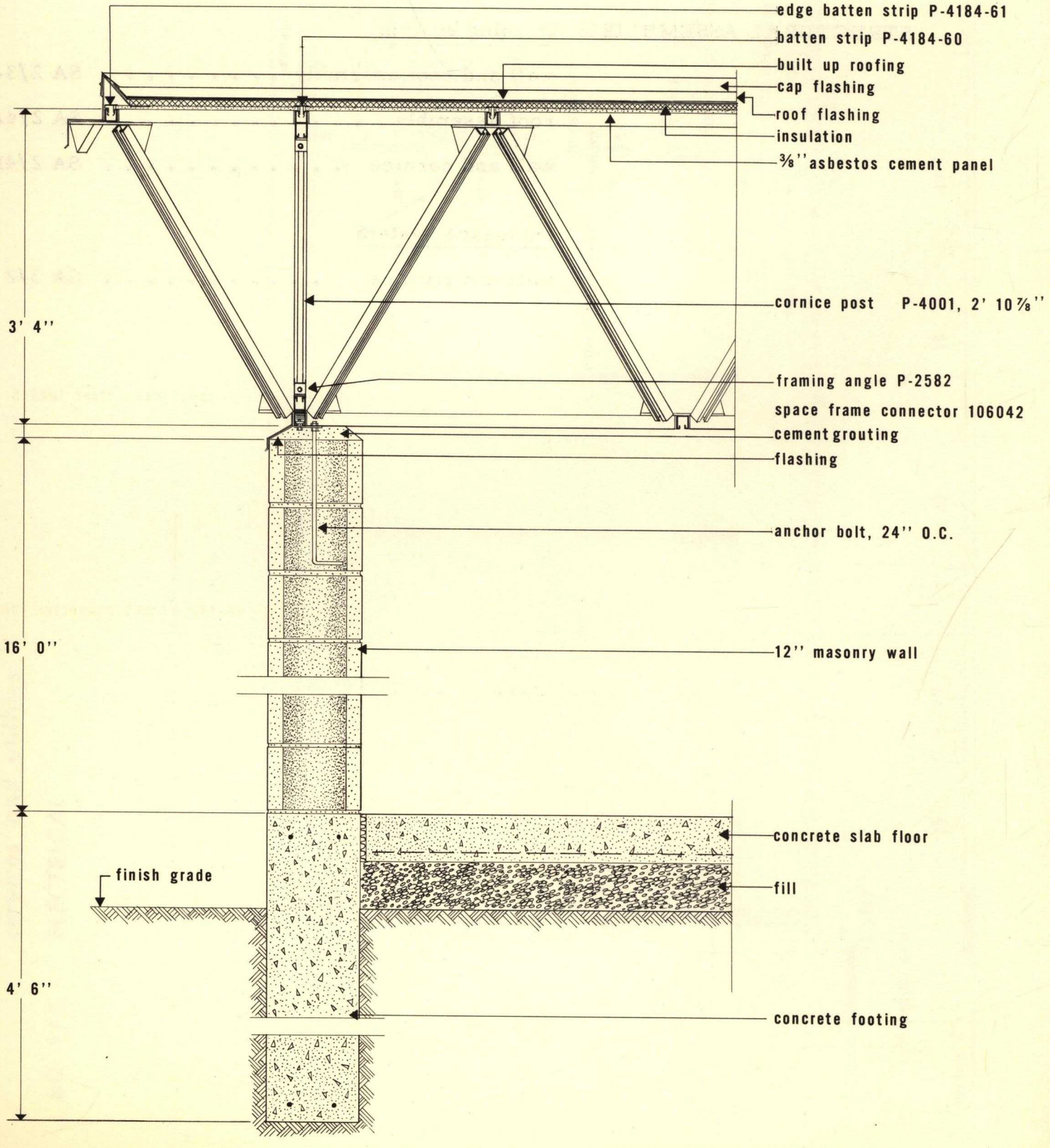
wall and cornice . . . . . SA 3/2

framing system

WALL & ROOF ASSEMBLY

SA 2/3-4

INCHES
0 1 2

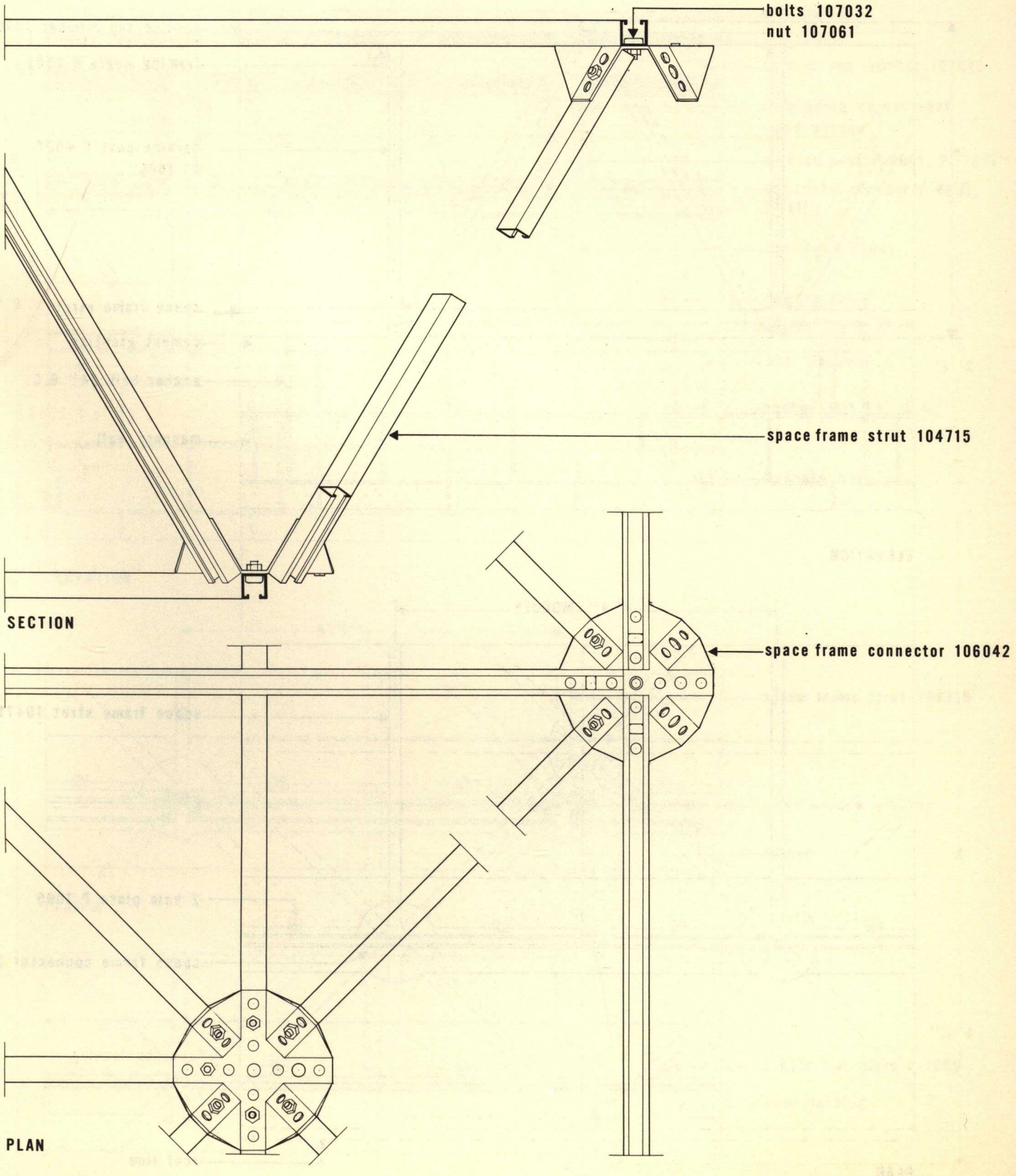


framing system

ROOF ASSEMBLY

SA 2/4A

0 3 6 9 12 INCHES

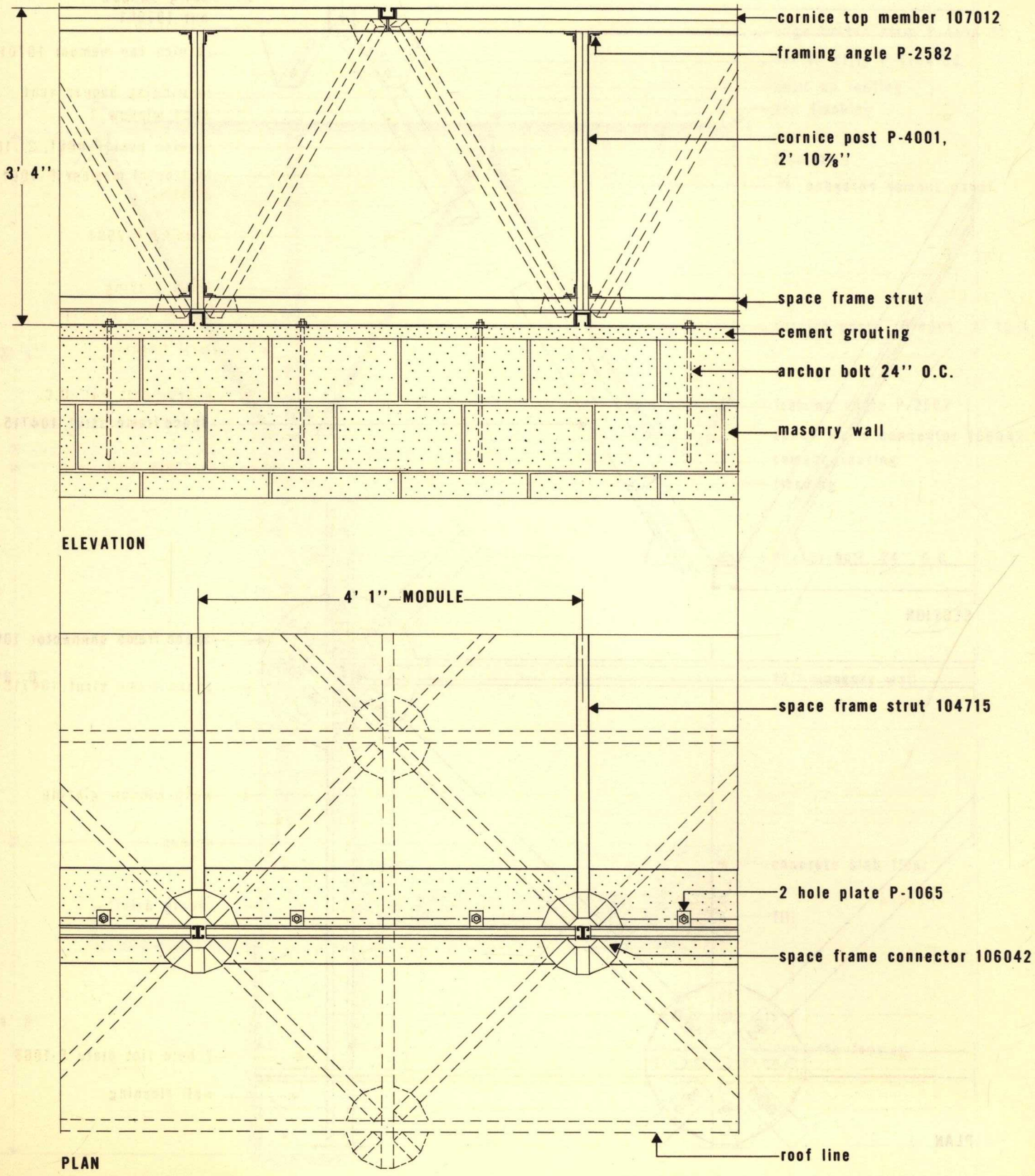


framing system

WALL & CORNICE

SA 2/4B

0 1 2 FEET

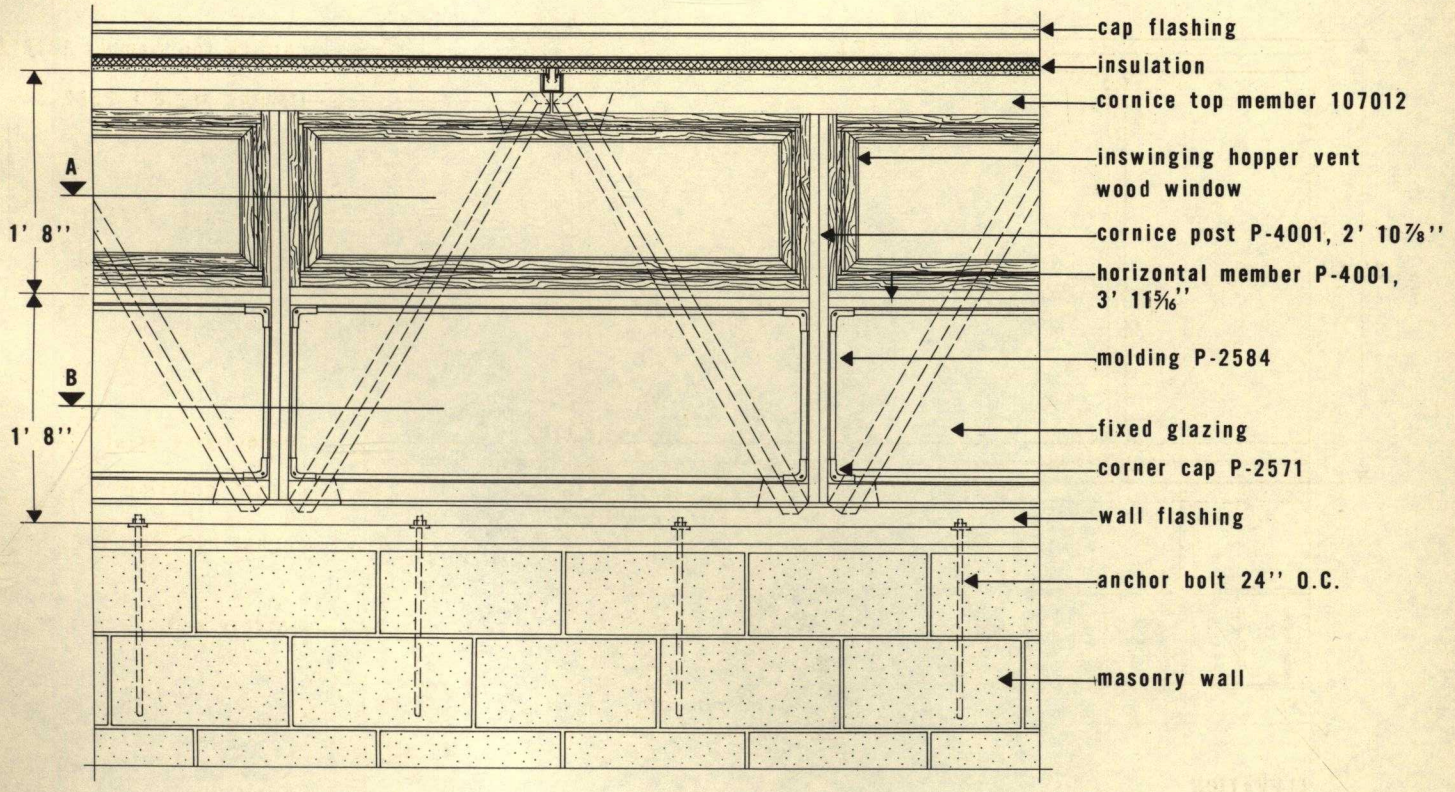


enclosure system

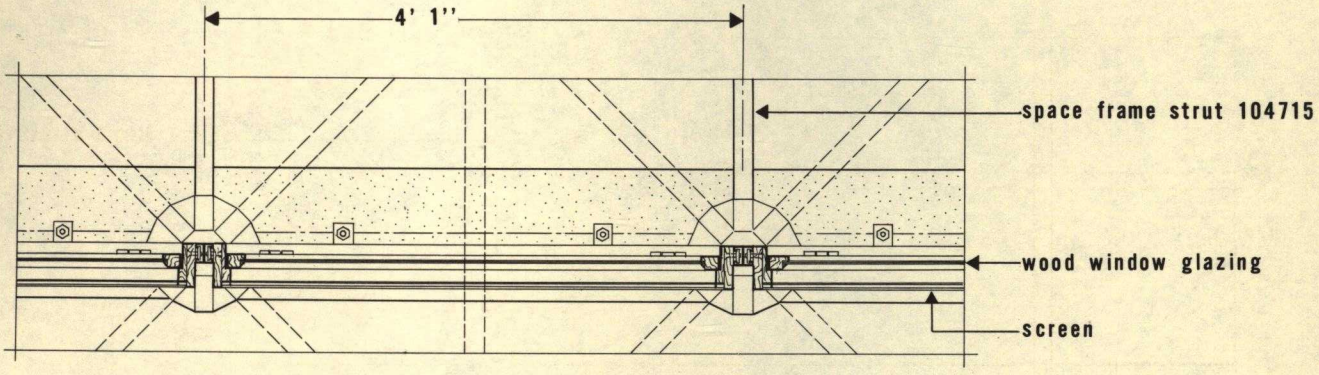
WALL & CORNICE

SA 3/2

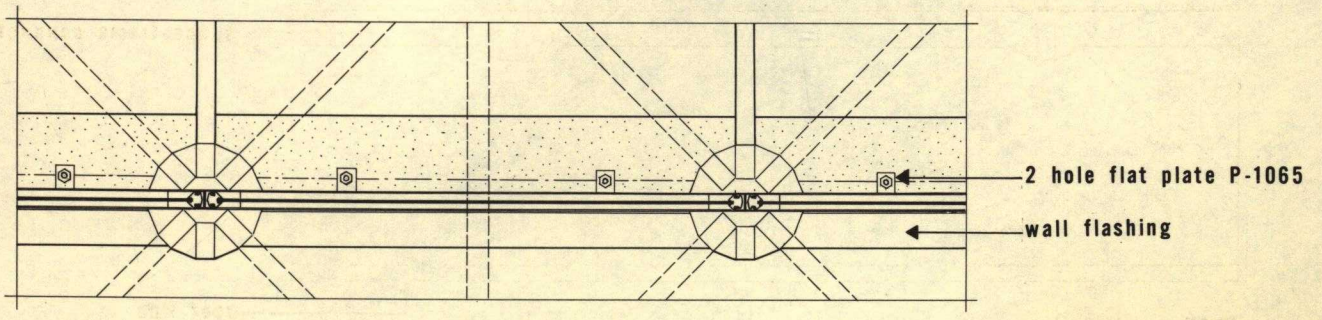
0 1 2 FEET



ELEVATION



PLAN A



PLAN B

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